

Pre-reforming of commercial diesel over Ni/Ce<sub>0.9</sub>Gd<sub>0.1</sub>O<sub>2-x</sub>

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Diesel reforming has been considered an attractive way to feed syn-gas into fuel cells. In this paper, Ni/Ce<sub>0.9</sub>Gd<sub>0.1</sub>O<sub>2-x</sub> (CGO) is investigated for pre-reforming of commercial diesel. Ni/CGO prepared by incipient wetness impregnation (IWI) and glycine nitrate process (GNP) is compared. In addition, degradation accelerated tests are conducted to optimize Ni loading. The tests conditions are 2.0 of H<sub>2</sub>O, 5,000/h of GHSV and 500°C. The prepared and spent catalysts are characterized by transmission electron microscope, temperature programmed reduction and oxidation. Ni/CGO prepared by GNP shows higher stability than Ni/CGO prepared by IWI. In temperature programmed oxidation, 20 wt.% Ni loading shows the lowest coke formation after degradation accelerated tests.

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